PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Koichi NUMATA et al.

Group Art Unit: 1795

Application No.: 09/883,966

Examiner: K. HANDAL

Filed: June 20, 2001

Docket No.: 109237

For: FUEL REFORMING APPARATUS AND METHOD OF CONTROLLING THE FUEL REFORMING APPARATUS

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the April 28, 2008 Office Action and the July 23, 2007 personal interview, reconsideration of the above-identified application is respectfully requested in light of the following remarks. Claims 1, 3, 4, 7, 10, 13, 19-22, 25, 26 and 31 are pending in this application.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Handal in the July 23, 2007 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

Claims 1, 3, 4, 7, 10, 13, 20-22 and 31 were rejected under 35 U.S.C. §103(a) over Noguchi et al. (Noguchi), U.S. Patent No. 4,036,180, in view of Rao et al. (Rao), U.S. Patent No. 5,758,496, Yorita et al. (Yorita), U.S. Patent No. 5,855,781, and Gadkaree et al. (Gadkaree), U.S. Patent No. 5,750,026. The rejection is respectfully traversed.

As discussed during the personal interview, claim 1 calls for:

a plurality of partitions that are comprised of an interstitial material including a plurality of gaps having an effective diameter from 10 to 100 μm for trapping soot that is generated in the raw gas due to the hydrocarbonic fuel,

a reforming catalyst that is carried by the plurality of partitions on the second face on the side of the processed gas flow passage, and

a first face of the plurality of partitions on the side of the raw material supply flow passage that is only coated by an inactive second material.

Claims 21 and 31 call for similar features. As discussed during the personal interview, the combination of references fails to suggest all of the above features for the following reasons:

(1) The claimed invention is not reasonably predictable from the combination of all of Noguchi, Rao, Yorita and Gadkaree. The Office Action proposes to rearrange the parts of Noguchi, Rao, Yorita and Gadkaree without providing the requisite reason why a person of ordinary skill in the art, without the benefit of Applicants' specification, would have rearranged the parts. See MPEP §2144.04 (VI.C). Applicants provide the following examples.

The Office Action conclusorily asserts that it would have been obvious to use Yorita in making the honeycomb of Rao as one of the known methods in the art of making honeycomb filters. Applicants disagree with this reasoning provided in the Office Action, at least because there are various known methods in the art of making honeycomb filters (for example, Noguchi, Rao and Gadkaree, as well as other pieces of prior art, provide various methods), none of which suggest the method disclosed by Yorita.

In addition, Yorita is directed to a liquid filter having conduits. Yorita thus does not have raw gas flow through their filter. As a result, it is not reasonably predictable to look to a liquid filter in order to modify the air filters of the remaining applied references.

The Office Action also conclusorily asserts that it would have been obvious to use Gadkaree in order to suggest an effective diameter from 10 to 100 μm for trapping soot in order to have the honeycomb structure comprises a particulate filtration medium. Applicants again disagree with this reasoning provided in the Office Action, at least because there are various known effective diameters that could have been used, none of which suggest the effective diameters disclosed by Gadkaree.

In addition, a statement that modifications of the prior art to meet the claimed invention would have been well within the capabilities of one of ordinary skill in the art at the time the claimed invention was made, because the references relied upon teach that all aspects of the claimed invention were individually known in the art, is not sufficient to establish a *prima facia* case of obviousness without some objective reason to combine the teachings of the references. See MPEP §2143(IV). Thus, the Office Action fails to articulate an adequate rationale for combining individual pieces of structure from each of Noguchi, Rao, Yorita and Gadkaree in order to reconstruct claims 1, 21 and 31. See MPEP §§2141-2143.

(2) It is improper to combine all of Noguchi, Rao, Yorita and Gadkaree in order to suggest the above features of claims 1, 21 and 31 because such combination involves impermissible hindsight using knowledge gleaned only from Applicants' disclosure. Such hindsight reconstruction of the claimed invention is improper. See MPEP §2145(X)(A). As discussed during the personal interview, a large number of fuel reforming apparatuses exist with a wide range of structure. There appears to be no logical reason for one of ordinary skill in the art to seek out and combine individual pieces of structure from each of Noguchi, Rao, Yorita and Gadkaree in order to reconstruct claims 1, 21 and 31. The claimed combination

would not have been obvious to try because there was not a finite number of identified, predictable potential solutions to a recognized problem or need. See MPEP §§2143(E) and 2143.02. Applicants assert that, given the circumstances, knowledge gleaned only from Applicants' disclosure was used, which is impermissible hindsight.

(3) The combination of references discourages using the inactive material coating of claims 1, 21 and 31. Noguchi fails to discuss using an inactive material coating and Gadkaree fails to discuss how their catalyst is highly dispensed (col. 10, lines 9 and 10). If Rao and Yorita were to be combined as suggested on page 4 of the Office Action, Yorita's filtration membrane (as illustrated by Fig. 10) would be placed on both the raw material supply flow passage and the processed gas flow passage of Rao. This does not appear to be a desirable effect in view of Rao, which already uses a layer 54 of carbon particulate and a metal oxide for the inlet channels 44 and a thin layer 56 of an oxidation catalyst for the exit channels 46.

In view of the above, Applicants assert that the combination of references fails to suggest all of the features recited in claims 1, 21 and 31, as well as the additional features recited in the dependent claims. It is respectfully requested that the rejection be withdrawn.

Claim 19 was rejected under 35 U.S.C. §103(a) over Noguchi in view of Rao, Yorita, Gadkaree and Jahnke et al. (Jahnke), U.S. Patent No. 6,149,589, and claims 25 and 26 were rejected under 35 U.S.C. §103(a) over Noguchi in view of Rao, Yorita, Gadkaree, Hwang et al. (Hwang), U.S. Patent No. 4,522,894, and Doty et al. (Doty), U.S. Patent No. 5,098,455. The rejections are respectfully traversed.

Jahnke, Hwang and Doty fail to overcome the deficiencies of Noguchi, Rao, Yorita and Gadkaree as applied to independent claims 1, 21 and 31. It is respectfully requested that the rejections be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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JAO:SMS/ejw

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